

wherein said light source is adapted to allow a change between different wavelengths for producing, alternately, transmitted light illumination and epi-fluorescence illumination.

18. The microscope device as claimed in claim 17, wherein said reflector means comprises a body having a concave surface which reflects the light beam.

19. The microscope device as claimed in claim 18, wherein said body of said reflector means is hemispherically-shaped.

20. The microscope device as claimed in claim 19, wherein said body of said reflector means is transparent.

21. The microscope device as claimed in claim 18, wherein said concave surface is adapted to reflect essentially all of the illumination light beam.

22. The microscope device as claimed in claim 18, wherein at least a portion of said concave surface is reflective with respect to at least a portion of the illumination light to produce oblique illumination of the specimen.

23. The microscope device as claimed in claim 17, wherein said objective lens is operable to be optically coupled to the specimen via an immersion liquid for transmitting the light beam from said light source to the specimen.

24. The microscope device as claimed in claim 17, further comprising a holder for supporting the specimen on a surface of the specimen facing away from said objective lens, said holder being transparent so as not to reflect the light beam.

25. The microscope device as claimed in claim 24, wherein said body of said reflector means is operable to be optically coupled to the holder via an immersion liquid for transmitting the light beam reflected by said reflector means to the specimen.

26. The microscope device as claimed in claim 18, wherein said concave surface is reflective over its entire area with respect to fluorescent light emitted by the specimen.

27. The microscope device as claimed in claim 17, further comprising a dichroic beam splitter for reflecting excitation light produced by said light source into said objective lens.

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28. The microscope device as claimed in claim 27, wherein said dichroic beam splitter is essentially impermeable with respect to said excitation light and is essentially permeable with respect to fluorescent light.

29. The microscope device as claimed in claim 17, wherein at least a portion of said reflector means includes a nonreflecting surface for transmitting laser light emitted from outside a boundary surface of said reflector means to a reflecting boundary surface to the surface of the specimen that reflects the laser light from outside the reflector means at an angle such that total reflection of laser light occurs at the boundary surface to the surface of the specimen by which fluorescent excitation of the specimen takes place in a near field area on said boundary surface.

30. The microscope device as claimed in claim 17, wherein said reflector means comprises a body having an aperture for allowing particles flung from the specimen by action of the light beam to be captured by said reflector means.-
